AWA Newsletter

#71

December 2011

A Member of the SARL

Antique Wireless Association of Southern Africa

Inside this issue:

AWA Committee:

* President—Don ZS5DR
* Technical Advisor—Rad ZS6RAD
* Secretary/PRO—Andy ZS6ADY
* Western Cape—John ZS1WJ

Reflections:

As we fast draw towards the end of another year, it seems only fair to reflect back on some of the happenings in this past year.

Our CW weekend did not go down too well this year with poor activity. Hopefully this next year we will see a few more CW operators coming along and joining in the fun. The CW activity will be reduced from a 24 hour activity to a much easier 4 hours with no 80m due to the poor band conditions being experienced there.

The AM and SSB QSO parties were much more active and it was good to hear so many trying out their skills on AM. The second session was dropped due to difficulty in advertising the event. This happened at the same time the SARL website was experiencing a lot of problems. Thanks to the guys who have put in many hours to sort out the web problems.

Our AGM came and went and a new President was elected for the next term of office. Our thanks of course to Don ZS5DR the outgoing President and welcome to Richard ZS6TF the President elect. Richard will officially take up office from the beginning of January.

Its hard to believe the AWA is heading in to its tenth year of existence and we have seen it grow from strength to strength. Every year there are more people who want to associate with the AWA because of their love for antique wireless.

As a member of the SARL and a club, we probably have one of the largest memberships.

This year also saw the formation of the Western Cape group which is also growing as more of the ham fraternity join in on the fun.

Thanks to all of you who have participated in the nets and really kept the interest in the AWA going. It is of course only because of your interest, that we have managed to keep going for so long.

May the next year be a happy and fruitful one for you all and may your shacks be filled with the warmth and glow of hollow state technology.

Happy Holidays to you all and best 73.

De Andy ZS6ADY

Amplitude Modulation

Amplitude modulation (**AM**) is a technique used in electronic communication, most commonly for transmitting information via a radio carrier wave. AM works by varying the strength of the transmitted signal in relation to the information being sent. For example, changes in signal strength may be used to specify the sounds to be reproduced by a loudspeaker, or the light intensity of television pixels. Contrast this with frequency modulation, in which the frequency is varied, and phase modulation, in which the phase is varied.

In the mid-1870s, a form of amplitude modulation—initially called "undulatory currents"—was the first method to successfully produce quality audio over telephone lines. Beginning with Reginald Fessenden's audio demonstrations in 1906, it was also the original method used for audio radio transmissions, and remains in use today by many forms of communication—"AM" is often used to refer to the medium wave broadcast band (see AM radio).

CW Net:

The CW net still goes along with interest and Barrie ZS6AJY sent me the following report.

The AWA net is still running on Saturday afternoons at 2pm. I call and usually get a few replies. If there is a RADAR or QRP contest on the go they call in for points and sometimes get good response. There are some regulars ZS6AVP, ZS6JBJ, ZS5CQD amongst them.

Weekday afternoons from 2pm to 3pm I am on 7020. Also several regulars, and it seems there are others that listen, probably to practice their CW.

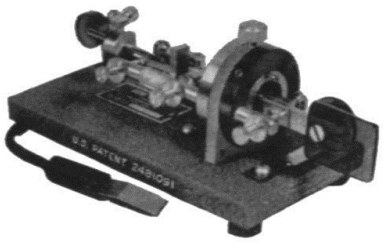
Some just pop in for a quick report. ZS5DM has been calling in to get reports on the QRP rigs that he is developing and I understand is to be available in kit form. Also a 5W amplifier is in the pipe line.

Conditions are very good these days, but we have been having storms.

The higher frequency bands are excellent and there is plenty of activity. I watch the DX Forum and occasionally see some ZS stations active. There is a lot of DX to be worked and a few months ago I spent afternoons working 15 and 10 m with good results. But unless one is looking for certificates the endless 599 Pse QSL type of QSO gets a bit boring.

I prefer to have a chat, get to know the person at the other end, and use CW to communicate!

Thanks Barrie, and I must admit, I too am not really a number exchange QSL hunter. Much prefer to have a bit of a rag chew and get to know the other person.



Only problem with my CW is its more like chewing the cud, it takes a while to digest properly.

Keep up the CW and one of these days we'll be able to get back on the net again.

Best 73,
De ZS0AWA … -.-

SSB activity:

40m certainly is the band of choice for local comms these days and the band has certainly been in good condition. That is with the exception of the Western Cape. It would seem that nothing wants to work in that direction.

We are planning to drop the 80m relay for the Saturday morning SSB net and will be trying to get a 20m relay running using a beam in the Western Cape direction. Hopefully it will be broad enough to include parts of the Eastern Cape as far as East London. I am sure that after a few tests we will be know exactly how far and how wide we will be able to work.

80m has really not been working well these days and really only open to a few of the local stations around the time of the SSB net.

So it may just be worth while to try and draw in the guys from WC and see if it will work for them.

If you are able to hear us on 20m but cannot work us, send an email or sms or if all else fails, carrier pigeon.

Look out for ZS0AWA on 14125, at least until we find a frequency that suits us.

I will be using the Collins KWM2-A on 20m and the Collins S3 line on 40m. Hopefully it will work as well as what the 80m relay did and we will be blessed with good 5/9 communication all round. Only time will tell.

Collins KWM2-A

AM:

Unfortunately, my 32V-3 has given up the ghost on me. During one of the Wednesday night AM sessions everything just went pear shaped and my old faithful died on me.

With time constraints and salt mine activities taking president, I haven't had the time to even try to have a look at what has happened.

Fortunately I can still listen in on the AM net and the old faithful's still fill the airwaves with the joyful sounds of MF's.

As mentioned in the SSB section, 80m has not been that great and tends to fade out to Div 5 fairly quickly on a Saturday morning, leaving the local Div 6 and Div 4 stations time to play around on the band.

We have tried getting up really early, but in order to catch 80m before the D layer absorption takes place, one has to be really early. So winter still remains the best time for 80m on AM.

With the promises of another AM station coming on air sometime in the future, namely Richard ZS6TF, we look forward to having more of you join us on the AM nets.

AM can be rather challenging, as I am sure many of us have found out through trial and error. Transmitting MF is not the easiest of matters either, but does produce a lot of fun and enthusiasm once the bug bites.

It matters not whether you use a 100 % AM rig or use a modern rig that can Transmit on AM, there is a challenge to get a good clean signal and perfect audio, that does not happen on SSB. So blow off the cobwebs and try that AM transmitter out and come along and join us on the air.

Collins 75A-4

By Joel Thurtell, K8PSV From *QST*, November 1998

Zenith's "One-and-Only" Ham Receiver

In the art world, when a "one of a kind" masterpiece surfaces, collectors battle for the right to possess a unique treasure. Ham radio collectors are no less frenzied. And as the author discovered, mythical, legendary and lost treasures are occasionally recovered—even by mere mortals!

It's 1958. You're a crackerjack engineer at Zenith. Your boss gives you a long-term assignment: Design the best Amateur Radio receiver money can buy. What kind of radio would you build?

Wait! Zenith in the ham radio business? Sure, they made television sets and delved into military electronics. But whoever heard of them manufacturing ham radios back in the '50s?

Well, they did it, but under a different name. Zenith's ham radio products were marketed under the Central Electronics logo. In truth, everything they sold sprung from the fertile brains of ham radio entrepreneur Wesley Schum, W9DYV, or his chief engineer, Joe Batchelor, W4EGK—even the fantastic receiver that would be designed by that hotshot engineer at Zenith.

Central Electronics leaped into ham radio history in September 1952, when *QST* ran Schum's ad promoting a little gray box that transmitted a then-little-used mode called SSSC—single sideband suppressed carrier. We now simply call it single sideband, or SSB, and everybody knows it's the dominant mode on the HF ham bands.

But in the early 1950s, SSB was an exotic form of communication. Standard ham receivers couldn't even demodulate the newfangled signals. And for years, many ardent AM operators rejected the new mode.

Sideband transmitters in those early days were homebuilt. It was Schum who conceived of manufacturing a low-cost kit that would give builders a usable, low-power SSB transmitter. Schum called it the "10-A," and began shipping kits from his garage in Chicago. Schum became a missionary for sideband, traveling around the country and speaking to every ham radio club willing to give him a time on their programs.

He recalls receiving a standing ovation from Chicago's Hamfester's Radio Club after he demonstrated the 10-A. But the going was often rough. Doc Holt, W9VVN, remembers the Hamfester's Club meeting differently.

"The initial response of the audience was one of skepticism and even derision," recalls Holt. "Many of my ham buddies who were steeped in the AM phone tradition called it 'silly sideband' or worse yet, 'duck talk.' "

A few curious hams bought 10-As. They discovered that sideband signals, even barefoot 10-W signals, could get through when AM was fading or lambasted by interference. Soon, more hams bought 10-As. Schum found more garages for assembling the rigs.

Meanwhile, in Cedar Rapids, Iowa, the head of Collins Radio Company was listening. Art Collins was used to being king of the pileups with his 1000-W, plate-modulated Collins KW-1.

As pristine today as when it was originally manufactured, the Central Electronics 100-R receiver.

A rare Zenith publicity photo of the 100-R. (*Courtesy of Wes Schum, W9DYV*)

"A guy in Indiana was pinning Art's ears back with reports much better than Art was getting with his KW-1 and rhombic farm," recalls Schum. The Indiana ham was driving a pair of 811As with a Central 10-A. His power output was less than the KW-1, but single sideband was more effective.

Collins called Schum. He wanted Schum to sell him a 10-A.

Problem was, there were no factory-wired units on hand.

Schum told Collins, "If you think you have anybody out there who could put a kit together, we could sell you a kit."

Collins' response: "I think we could manage, Wes."

"I found out later they didn't read the assembly instructions and went at it in typical ham fashion. It took them a month to get it running," recalls Schum.

A few months later, Collins called to place another order. "We'd like to buy three of them, Wes, but no more kits."

Business was good. The 10-A was followed by the improved 10-B, then the 20-A, which was a band-switching rig that covered 160 through 10 meters with 20 W of RF output. Central also offered accessories such as the MM-1 and MM-2 station monitoring scopes, and the Model A and Model B *sideband slicers* to convert older receivers to sideband reception.

Meanwhile, Schum noticed a potential competitor. In Georgia, Joe Batchelor was converting military surplus BC-696 transmitters into sideband exciters. He sold dozens of the little rigs, even though they had no name. Batchelor said Schum was worried that the little '696s would compete with his 10-A. So Schum invited Batchelor to join him at Central.

Batchelor brought a novel idea to Chicago. How about a "look, ma, no hands" transmitter? A deluxe 100-W output, all-mode transmitter that required no final amplifier tuning. Batchelor eventually patented his broadband coils, which were the major innovation in the Central Electronics 100-V transmitter and 600-L linear amplifier.

The 100-V had a stable, permeability tuned oscillator and a small oscilloscope for monitoring the transmitter's signal quality. It could transmit CW, phase modulation, double sideband (with or without carrier) and single sideband (with or without carrier). It would also do radio teletype. The 100-V used the phasing method of generating a single sideband signal, with circuitry that ensured long-term carrier and unwanted sideband suppression rivaling or surpassing that achieved by typical filter generators. But the big advantage of the phasing system was audio quality. The final tubes were two 6550s—highly linear audio tubes. If you liked hi-fi, you'd love the 100-V.

A Matching Receiver?

Batchelor and Schum always wanted to produce a receiver that would match the marvelous 100-V. Such a receiver would have to be like its deskmate—revolutionary.

But first they had to deal with production problems. The complex 100-V turned out to be a handful—like a talented, temperamental child.

The first Batchelor broadband couplers were inefficient.

"The first 100-Vs didn't ship until late 1958," said Schum's good friend Nick Tusa, K5EF. "During that time they endured VFO problems, bad HF oscillator crystals and the continual problem of getting the Batchelor couplers to a state where they were consistently reproducible."

By 1958, said Schum, "We didn't have the working capital to produce more than a million dollars of backlogged orders for the 100-V. We had run ourselves out of money. The (100-V) buyers didn't pay cash. Instead of getting money in hand, we got a purchase order—the dealers had my working capital!"

Schum eventually worked out a takeover that left Zenith in control. New capital flowed in, the 100-Vs—by then performing beautifully—were almost selling themselves. An updated model, the 200-V, went on the market.

With Zenith came new talent. Now Schum and Batchelor outlined what they wanted in a receiver that would properly complement the 100-V: It must have high sensitivity, selectivity and stability. It must transceive with the 100-V and it must resemble the 100-V.

Bill Van Slyck, W9EMB, was head of special products at Zenith. He assigned two top engineers—including Jim Clark, a former Hallicrafters receiver designer—and two technicians to the receiver project.

"They worked several years on this thing," recalls Van Slyck. "We spent a quarter of a million dollars when you think of all the company overhead."

He told Clark's team, "Build the best receiver ever built, with an emphasis on single sideband."

It would be called the 100-R.

Clark's engineering notes show that a prototype was in use by 1960. Follow-up tests were conducted through 1961.

Schum took it home and played with it. "It worked well—I transceived with it one Sunday afternoon with a 200-V."

It covered the ham bands, 160 through 10 meters. The second intermediate frequency was at 50 kHz, with six tuned circuits for excellent selectivity without crystal or mechanical filters. The PTO could be owner-adjusted quite easily. It had three degrees of selectivity for AM, two each for upper and lower sideband and one position for CW.

Once again, the receiver featured a Batchelor creation: The bifilar compressor was an RF-derived AGC system that made the front end virtually immune to strong signal overload. Together with low-noise RF, mixer and IF tubes, the receiver had impressive sensitivity—better than 0.6 microvolts through 40 meters and less than 0.9 microvolts on 10 meters.

Ray Osterwald reviews receivers for *Electric Radio* magazine. He calls the bifilar compressor "true genius."

"It would probably be tough to overload, even with a gain antenna on 40 meters at night," said Osterwald.

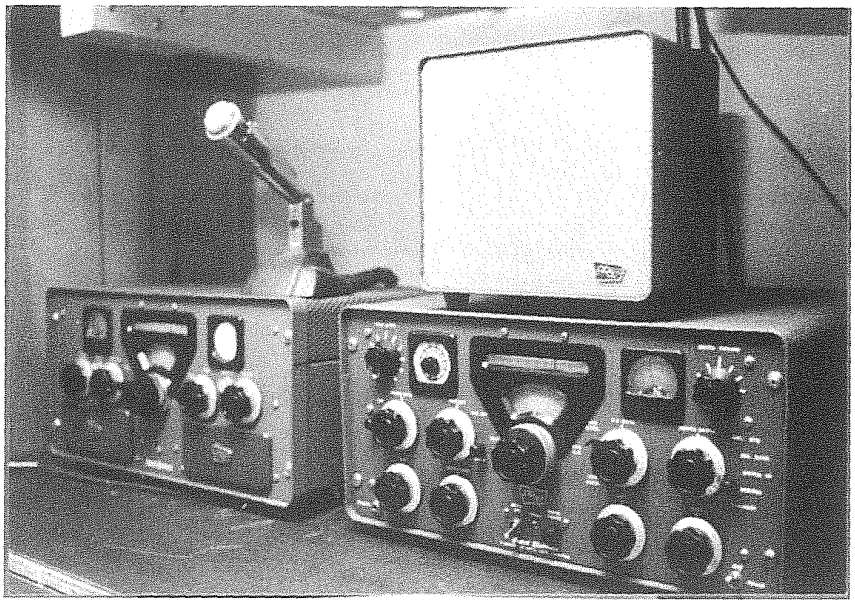
Schum recalls planning to have five more prototypes built with production and sales to begin in 1962.

Central's transmitter sales were brisk, but a new president at Zenith decided Amateur Radio was not good for the corporation.

"I think they experimented with the (ham radio) market and found it wasn't deep enough for them," said Schum.

Late in 1961 came orders from Zenith: Close Central Electronics.

Wes Schum remembers the trash bins. Central's records—everything from de-



The Central Electronics 100-V transmitter, left, and the companion 100-R receiver in the author's shack.

sign plans to sales receipts—went to the landfill.

Including parts for the next five 100-R prototypes.

The lone 100-R prototype vanished.

Years passed. Schum longed to reestablish what he calls "Central Headquarters." He had a couple of 200-Vs and some other Central equipment. And a friend donated a 75A-4.

Whatever happened to that lone 100-R?

I run a small used ham radio equipment business. Over the course of my buying and selling old ham equipment, I had heard a yarn about a receiver companion to the 100-V. I also longed to own it. I had owned 100-Vs and 200-Vs at different times, and always loved the transmitters. I would usually run a Collins 75A-4 as a receiver, but it was not a perfect match.

Rumor had it that some ham had managed to acquire the 100-R. How many times had I sat in front of my 100-V and wished for a matching receiver? It would be wonderful, but...it was a dream, that's all.

Then one day in September 1997, my phone rang.

I sipped coffee and waited for the answering machine to take the message.

"Joel, this is Bill Van Slyck in Chicago. I have a receiver you may be interested in...."

Turns out Van Slyck bought the 100-R along with a matching speaker and 100-V transmitter from Zenith as the electronics giant pulled the plug on Central. All three units had sat in his basement unused.

One hitch. Van Slyck had a little auction going. A collector from New Orleans was on his way to make an offer for the 100-R.

I drove to Chicago, and there it was—the mythical 100-R was real after all!

The New Orleans collector paid Van Slyck a visit, too. I figured they'd top my offer. End of story. But the next day I had a phone call. It was Bill Van Slyck, accepting my offer.

After another rushed trip to Chicago, I was in my shack cabling the 100-R to my 100-V transmitter. Transceive with the 100-V!

And thinking. Van Slyck assured me that "there is only one," but still, I wondered. Was there another stray 100-R out there?

Who would know for sure?

I called Wes Schum.

"You got a one and only," said Schum.

Then it hit me. My rival on the 100-R deal, the "New Orleans collector" Van Slyck had mentioned, was Schum's friend Nick Tusa. And Schum was with him.

"I am preparing my second ham shack with a 200-V, and I was looking forward to buying that receiver," Schum said. "I wanted to get the 100-R and 200-V on the air at headquarters."

He offered me a deal: Send him the 100-R on loan. He would tune it up and make detailed notes on its design and performance. So, after playing with it, photographing it and talking about it to anyone who'd listen, I packed it up and shipped it to Wes Schum.

The 100-R is on line at Central Electronics headquarters and Wes has overhauled it. He even sent the PTO to Nick Tusa for repair. Now he's comparing its performance to his Collins 75A-4, the main competition when the 100-R was conceived.

Does the venerable 75A-4 stand a chance?

Stay tuned—that's another story!

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Antique Wireless Association of Southern Africa

Mission Statement

Our aim is to facilitate, generate and maintain an interest in the location, acquisition, repair and use of yesterdays radio transmitters and receivers. To encourage all like minded amateurs to do the same thus ensuring the maintenance and preservation of our amateur heritage.

Membership of this group is free and by association.

Notices:

NET TIMES AND FREQUENCIES:
The following are times and frequencies for the AWA nets:

AM Net—Wednesday evenings from around 18:30: Saturday mornings from around 06:00 or when band conditions allow. Frequency—3615.

SSB Net—Saturday mornings from 08:30. Frequencies—7070 with a relay on 14125.

CW Net—Saturday afternoon from 14:00. Frequency—7020.
(Times given are CAT or SAST)

For Disposal:

Yaesu FRG7 communications receiver with handbook for sale.
In working order and excellent clean condition.
R600 or nearest cash offer.

James Fairlie ZS5ABW Tel. 033-3867862 or 072-1799906 any time.